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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,746	01/02/2004	Jui-Hung Hsu	250809-1040	1852
24504	7590	03/09/2005	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			A, MINH D	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/750,746

Applicant(s)

HSU, JUI-HUNG

Examiner

Minh D. A

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11 is/are rejected.
- 7) ☒ Claim(s) 10, 12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/17/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 11 are rejected under 35 U.S.C. 102(b) as being unpatentable by Fang et al (US 6,727,854).

Regarding claim 1, Fang discloses a planar inverter F-antenna with a first operational frequency and a second operational frequency for an electronic device, the multi-frequency antenna comprising: an antenna body including a feed-in terminal (291), a ground terminal(271), a first radiation arm(210A), and a second radiation arm (210B), wherein the first and second radiation arms are arranged in symmetrically inward spiral form, share the feed-in terminal, and form a first current path (L1) and a second current path (I2) which realize the first and second operational frequencies respectively', and a ground plane, coupled to the ground terminal and disposed with respect to the antenna body. See figures 2A-9D, col.2, lines 30-67 to col.7, lines 1-36.

Regarding claims 2-4, Fang discloses wherein the ground plane has a hollowed section which is beneath the endfire direction of the antenna and wherein the first operational frequency belongs to GSM bandwidth, and the second operational frequency belongs to DCS bandwidth. See figure 4, col.5, lines 10-44.

Regarding claim 5, Fang discloses a multi-frequency antenna comprising'.

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a multi-frequency antenna, an antenna body including a feed-in terminal, a ground terminal, a first radiation arm, and a second radiation arm, wherein the first and second radiation arms are arranged in symmetrically inward spiral form, share the feed-in terminal, and form a first current path and a second current path frequencies respectively; and which realize the first and second operational a ground plane, coupled to the ground terminal and disposed with respect to the antenna body; and a patch antenna, separately disposed in a side of the multi-antenna, having a third current path to realize the third operational frequency. See figures 2A-9D, col.2, lines 30-67 to col.7, lines 1-36.

Regarding claim 6, Fang discloses wherein the ground plane has a hollowed section which is beneath the endfire direction of the antenna. See figure 4, col.5, lines 10-44.

Regarding claim 11, Fang discloses wherein the first current path sets the first operational frequency within GSM bandwidth, and the second current path sets the second operational frequency within DCS bandwidth. See figure 4, col.5, lines 10-44

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Fang et al (US 6,727,854).

Regarding claim 7-9, Fang discloses the claimed invention except for 2.45 Ghz and distance of about 1-7mm and a current path has a length. It would have been an obvious matter of use to a frequency, distance and length, since such a modification would have involved a mere change in the frequency, distance and length of a component, since these changes has not teach any improvement and different of Fang 's invention.

#### ***Allowable Subject Matter***

5. Claims 10 and 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not teach that, wherein the third current path sets the third operational frequency meeting the requirement of Bluetooth communication.

#### ***Conclusion***


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Jo et al (US 6,842,158) and Nghiem. (US 6,008,762) are cited to show an antenna structure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Minh A whose telephone number is (571) 272-1817. The examiner can normally be reached on M-F (5:30 –2:30 PM).

If attempts to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and (703) 872-9319 for final communications.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (571) 272-1553.

  
TAN HO  
PRIMARY EXAMINER

Examiner

Minh A

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3/3/05